CLAIMS

1. (Previously Presented) A method for adaptive registration of a set of three dimensional medical images corresponding to first and second acquisitions of a particular patient by a single imaging modality, wherein a first acquisition image and a second acquisition image differ in one of background signal intensity and signal intensity of analogous structures, comprising:

obtaining medical image data produced by a single medical imaging modality at first and second acquisition times;

prior to any resampling, estimating an amount of patient motion that occurred between first and second acquisitions of the data by the medical imaging modality;

selectively performing one of a two dimensional image resampling, a three dimensional image resampling, and no image resampling based on the estimated amount of patient motion; and

generating a medical image representative of internal anatomical features of the patient.

2. (Original) The method of claim 1, wherein estimating the amount of patient motion comprises performing a motion estimation procedure that involves patient motion in a directional axis corresponding to a lowest image resolution.

3. (Original) The method of claim 2, wherein the axis corresponds to an MRI slice thickness.

4. (Original) The method of claim 1, wherein estimating the amount of patient motion comprises performing one estimated motion procedure selected from the group of a two dimensional and a three dimensional motion estimation procedure in accordance with one motion model selected from the group of a rigid and a non-rigid motion model.

5. (Previously Presented) The method of claim 1, wherein performing an image resampling comprises:

performing a comparison between the estimated amount of patient motion and a correction threshold; and

performing the image resampling based upon the comparison.

6. (Original) The method of claim 5, wherein the correction threshold corresponds to a fraction of an image resolution.

7. (Original) The method of claim 6, wherein the fraction has a value approximately between 0.4 and 0.8.

8. (Original) The method of claim 6, wherein the fraction has a value of approximately 0.5.

9. (Original) The method of claim 5, wherein the correction threshold corresponds to a fraction of an image resolution along a lowest image resolution axis.

10. (Previously Presented) The method of claim 9, wherein the axis corresponds to an MRI image slice thickness.

11. (Previously Presented) The method of claim 6, wherein the set of medical images comprises a set of imaging signals, wherein an imaging signal may be characterized relative to a background imaging signal intensity, a precontrast imaging signal intensity corresponding to a lesion, and a postcontrast imaging signal intensity corresponding to the lesion, and wherein the fraction has a value that depends upon at least one from the group of a background imaging signal intensity, a precontrast imaging signal intensity, and a postcontrast imaging signal intensity.

12. (Original) The method of claim 5, wherein performing the image resampling comprises performing a first image resampling procedure in the event that the estimated amount of patient motion equals or exceeds the correction threshold and performing a second image resampling procedure in the event that the estimated amount of patient motion is less than the correction threshold.

13. (Original) The method of claim 5, wherein performing the image resampling comprises performing a three dimensional image resampling procedure in the event that the estimated amount of patient motion equals or exceeds the correction threshold.

14. (Original) The method of claim 5, wherein performing the image resampling comprises performing a two dimensional image resampling procedure in the event that the estimated amount of patient motion is less than the correction threshold.

15. (Previously Presented) A method for adaptive registration of a set of three dimensional medical images corresponding to first and second acquisitions of a particular patient by a single imaging modality, wherein a first acquisition image and a second acquisition image differ in one of background signal intensity and signal intensity of analogous structures, comprising:

obtaining medical image data produced by a single medical imaging modality at first and second acquisition times;

prior to any resampling, estimating an amount of patient motion that occurred between first and second acquisitions of the image data by the medical imaging modality; and

performing a comparison between the estimated amount of patient motion and a correction threshold;

performing a three dimensional image resampling procedure in the event that the estimated amount of patient motion equals or exceeds the correction threshold;

performing a two dimensional image resampling procedure in the event that the estimated amount of patient motion is less than the correction threshold; and

generating a medical image representative of internal anatomical features of the patient.

16. (Original) The method of claim 15, wherein the correction threshold corresponds to a fraction of an image resolution.

17. (Original) The method of claim 16, wherein the fraction has a value between approximately 0.4 and 0.8.

18. (Original) The method of claim 16, wherein the fraction has a value of approximately 0.5.

19. (Original) The method of claim 15, wherein the correction threshold corresponds to a fraction of an image resolution along a lowest image resolution axis.

20. (Original) The method of claim 19, wherein the axis corresponds to an MRI image slice thickness.

21. (Original) The method of claim 15, further comprising the step of avoiding an image resampling in the event that the estimated amount of patient motion is less than the correction threshold by a predetermined amount.

22. (Previously Presented) A method for adaptive registration of a set of three dimensional medical images corresponding to first and second acquisitions of a particular patient by a single imaging modality, wherein a first acquisition image and a second acquisition image differ in one of background signal intensity and signal intensity of analogous structures, comprising:

obtaining medical image data produced by a single medical imaging modality at first and second acquisition times;

prior to any resampling, estimating an amount of patient motion that occurred between first and second acquisitions of the image data by the medical imaging modality; and

prior to any resampling, performing a comparison between the estimated amount of patient motion and a first correction threshold;

performing one of a two dimensional, three dimensional, rigid, and nonrigid image resampling procedure in the event that the estimated amount of patient motion equals or exceeds the first correction threshold;

avoiding an image resampling in the event that the estimated amount of patient motion is less than the first correction threshold; and

generating a medical image representative of internal anatomical features of the patient.

23. (Original) The method of claim 22, wherein the correction threshold corresponds to a fraction of an image resolution.

24. (Original) The method of claim 23, wherein the fraction has a value between approximately 0.4 and 0.8.

25. (Original) The method of claim 23, wherein the fraction has a value of approximately 0.5.

26. (Original) The method of claim 22, wherein the correction threshold corresponds to a fraction of an image resolution along a lowest image resolution axis.

27. (Original) The method of claim 26, wherein the axis corresponds to an MRI image slice thickness.

28. (Original) The method of claim 23, wherein the set of medical images comprises a set of imaging signals, wherein an imaging signal may be characterized relative to a background imaging signal intensity, a precontrast imaging signal intensity corresponding to the lesion, and a postcontrast imaging signal intensity corresponding to a lesion, and wherein the fraction has a value that depends upon at least one from the group of a background imaging signal intensity, a precontrast imaging signal intensity, and a post contrast imaging signal intensity.

29. (Previously Presented) A system for adaptive registration of a set of three dimensional medical images generated by a single medical imaging modality and representative of internal anatomical features of a particular patient at first and second acquisition times, wherein a first acquisition image and a second acquisition image differ in one of background signal intensity and signal intensity of analogous structures, comprising:

a processing unit; and

a computer readable medium containing program instructions to cause the processing unit to:

prior to any resampling, estimate an amount of patient motion that occurred between first and second acquisitions of the image data by the medical imaging modality;

perform a comparison between the estimated amount of patient motion and a correction threshold; and

select one from the group of performing a two dimensional image resampling procedure, performing a three dimensional image resampling procedure, and avoiding an image resampling in accordance with a relationship between the estimated amount of patient motion and the correction threshold.

30. (Original) The system of claim 29, wherein the correction threshold corresponds to a fraction of an image resolution.

31. (Original) The system of claim 30, wherein the fraction has a value between approximately 0.4 and 0.8.

32. (Original) The system of claim 30, wherein the fraction has a value of approximately 0.5.

33. (Original) The system of claim 29, wherein the correction threshold corresponds to a fraction of an image resolution along a lowest image resolution.

34. (Original) The system of claim 33, wherein the axis corresponds to an MRI image slice thickness.

35. (Previously Presented) The system of claim 29, wherein performing the first image resampling procedure comprises performing a three dimensional image resampling in the event that the estimated amount of patient motion equals or exceeds the correction threshold.

36. (Previously Presented) The system of claim 29, wherein performing the second image resampling procedure comprises performing a two dimensional image resampling in the event that the estimated amount of patient motion is less than the correction threshold.

37. (Previously Presented) The system of claim 29, wherein avoiding an image resampling comprises avoiding an image resampling in the event that the estimated amount of patient motion is less than the correction threshold by a predetermined amount.

38. (Cancelled)

39. (Previously Presented) The system of claim 29, wherein the medical imaging system comprises an MRI system.

40. (Previously Presented) The system of claim 39, wherein the medical imaging system comprises a breast MRI system and the processing unit processes breast medical image data.

41. (Previously Presented) A non-transitory computer readable medium storing program instructions to cause a processor to:

obtain three dimensional medical image data produced by a single medical imaging modality of a particular patient at first and second acquisition times, wherein a first acquisition image and a second acquisition image differ in one of background signal intensity and signal intensity of analogous structures;

prior to any resampling procedure, estimate an amount of patient motion that occurred between first and second acquisitions of the image data by the medical imaging modality; and

select one from the group of performing a two dimensional image resampling procedure, performing a three dimensional image resampling procedure, performing a rigid image resampling procedure, performing a nonrigid resampling procedure, and avoiding an image resampling in accordance with a relationship between the estimated amount of patient motion and a correction threshold to thereby generate a medical image representative of internal anatomical features of the patient.

42. (Original) The computer readable medium of claim 41, wherein the correction threshold comprises a fraction of an image resolution.

43. (Previously Presented) The computer readable medium of claim 42, wherein the fraction has a value between approximately 0.4 and 0.8.

44. (Previously Presented) The computer readable medium of claim 42, wherein the fraction has a value of approximately 0.5.

45. (Previously Presented) The computer readable medium of clam 41, wherein the correction threshold corresponds to a fraction of an image resolution along a lowest image resolution axis.

46. (Previously Presented) The computer readable medium of claim 45, wherein the axis corresponds to an MRI image slice thickness.

47. (Previously Presented) The computer readable medium of claim 41, wherein the three dimensional image resampling is performed in the event that the estimated amount of patient motion equals or exceeds the correction threshold.

48. (Previously Presented) The computer readable medium of claim 41, wherein the two dimensional image resampling is performed in the event that the estimated amount of patient motion is less than the correction threshold.

49. (Previously Presented) The computer readable medium of claim 41, wherein avoiding the image resampling comprises avoiding the image resampling in the event that the estimated amount of patient motion is significantly less than the correction threshold by a predetermined amount.

50. (Previously Presented) The computer readable medium of claim 22, wherein the two-dimensional resampling is performed if the estimated amount of patient motion is less than a second correction threshold and the three-dimensional resampling is performed if the estimated amount of patient motion exceeds a second correction threshold.

51. (Previously Presented) The method of claim 2, wherein the axis corresponds to a CT slice thickness.